

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions of the claims in this application.

1. (Currently Amended) A thermal spreading device disposable between electronic circuitry and a heat sink, the thermal spreading device comprising:

a substrate having a first face and a second face, the second face being disposed parallel to the first face, the material of which said substrate is fabricated having anisotropic thermal conductivity with a first thermal conductivity value in a direction parallel to the faces and a second thermal conductivity value in a direction normal to the faces, the second thermal conductivity value being less than the first thermal conductivity value; and

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a plurality of conduits extending through said substrate from the first face thereof to the second face thereof, the material of which each conduit of said plurality of conduits is fabricated having a thermal conductivity value associated therewith, the thermal conductivity value of each conduit being greater than the second thermal conductivity value of said substrate.

↑ 1st
→ 2nd

1st > 2nd

thermal conductivity
of conduit is >
the 2nd thermal
conductivity

2. (Currently Amended) The thermal spreading device of claim 1 wherein said substrate is fabricated from a material selected from the group consisting of carbon and carbon composite.

3. (Original) The thermal spreading device of claim 1 wherein each conduit of said plurality of conduits is defined by a rod having a substantially circular cross sectional geometry.

4. (Original) The thermal spreading device of claim 1 wherein each conduit of said plurality of conduits is positioned to be substantially equidistant from each other conduit of said plurality of conduits.

5. (Original) The thermal conduction medium of claim 1 wherein the density of said plurality of conduits is variable over an area of said substrate.

6. (Original) The thermal spreading device of claim 1 wherein each conduit of said plurality of conduits is fabricated from a material selected from the group consisting of copper, aluminum, carbon, and carbon composite.

7. (Currently Amended) A thermal conduction package for an arrangement of electronic circuitry, the thermal conduction package comprising:

an adhesive layer disposed on the electronic circuitry;

a substrate disposed on said adhesive layer, said substrate having anisotropic thermal conductivity with a first thermal conductivity value in a first direction parallel to said adhesive layer and a second thermal conductivity value in a second direction normal to said adhesive layer, the second thermal conductivity value of said substrate being less than the first thermal conductivity value of said substrate;

a thermal paste disposed on said substrate;

A (a plurality of thermally conductive conduits extending through said substrate from said adhesive layer to said thermal paste, each conduit of said plurality of conduits having a thermal conductivity value associated therewith, the thermal conductivity of each conduit being greater than the second thermal conductivity value of said substrate; and

a heat sink device disposed on said thermal paste.

8. (Original) The thermal conduction package of claim 7 wherein said adhesive layer is a material selected from the group consisting of solder and epoxy.

9. (Original) The thermal conduction package of claim 7 wherein each conduit of said plurality of conduits extends from a first face of said substrate in a linear direction to an oppositely positioned second face of said substrate.

10. (Original) The thermal conduction package of claim 7 wherein each conduit of said plurality of conduits is substantially equidistant from each other conduit of said plurality of conduits.

11. (Original) The thermal conduction package of claim 7 wherein the density of said plurality of conduits is variable over an area of said substrate, the density being greater proximate the electronic circuitry.

12. (Original) The thermal conduction package of claim 7 wherein each conduit of said plurality of conduits is fabricated from a material selected from the group consisting of copper, aluminum, carbon, and carbon composite.

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13. (Original) The thermal conduction package of claim 7 wherein said substrate is fabricated from a carbon composite material.

14. (Original) The thermal conduction package of claim 7 wherein said thermal paste is a natural or synthetic oil-based compound with thermally conductive particle filler material.

15.--26. (Canceled)
